SOYBEAN VARIETIES FOR ILLINOIS

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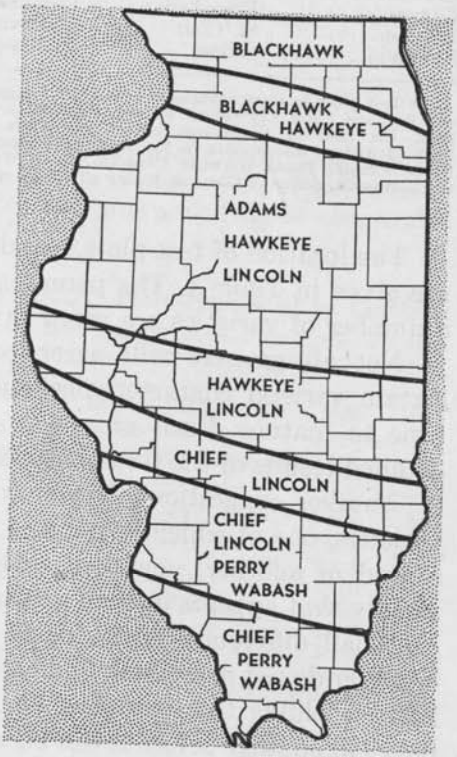
RESULTS of soybean variety trials are reported here to help

Comparative yields that can be expected are shown in Tables 2 and 3, and in addition Table 3 reports some plant characteristics and chemical properties.

Illinois, which stretches 385 miles from north to south, has a frost-free growing season varying from 160 days in the north to 200 days in the south. A primary consideration in the selection of a variety therefore is the time it requires to mature.



Varieties recommended for given parts of the state are shown here. During a test period of at least three years, these varieties proved superior in yields and several other characteristics.

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Table 1. — Location of Test Plots, Soil Description, Width of Rows, and Planting Dates, 1951

Town	County[a]	Soil description	Width of rows	Date planted
			in.	
Shabbona	DeKalb	Flanagan silt loam	40	June 1[b]
				May 29
Dwight	Grundy	Black silt loam	40	May 23
Urbana	Champaign	Flanagan silt loam	40	May 18[b]
				May 23
Clayton	Adams	Brown silt loam	40	May 28
Stonington	Christian	Black clay loam	28	June 2
Brownstown	Fayette	Cisne silt loam	40	May 25[b]
Edgewood	Effingham	Cisne silt loam	32	June 1
Trenton	St. Clair	Harrison silt loam	40	May 24
Eldorado	Saline	Yellow-gray silt loam	40	May 15

[a] Test plots in three counties — DeKalb, Champaign, and Fayette — were located on University Soil and Crop Experiment Fields; the field in *DeKalb* county was cared for by RICHARD BELL, the field in *Champaign* county by LLOYD CLAPP, and that in *Fayette* county by P. E. JOHNSON; cooperators in the remaining counties were: FRANK ROEDER, *Grundy;* RUSSELL DAVIS, *Adams;* FRANK GARWOOD, *Christian;* JOHN WILSON, *Effingham;* FRED BERGMAN, *St. Clair;* CYRIL WAGNER, *Saline.* [b] Combine trials; all others are rod-row trials.

The location of test plots, soil descriptions, and planting data are given in Table 1. The parentage and plant characteristics of a number of varieties are given in Table 4.

Not all growers will agree concerning the importance of certain varietal characteristics, such, for example, as length of time to mature. Each grower is therefore urged to study the detailed results of the tests for his area as given in Tables 2 and 3.

Another suggestion: If you want to compare data for two varieties, one of which appears in one section of a table and the second in another, you may sometimes do so through a third variety that appears in both sections.

Small differences in yields of varieties on any field in any one year do not necessarily indicate that one variety is inherently better yielding than another. For the amount one variety must outyield another before it can be considered better, see the difference-necessary-for-significance figures given at the bottom of each section of Tables 2 and 3.

Combine Trials

Combine variety trials have been conducted in recent years on the experiment field in DeKalb county in northern Illinois, at Urbana in central Illinois, and at Brownstown in southern Illinois (Table 2). From 10 to 20 varieties were included in plots of about 1/25 of an acre and replicated 4 times. All plots were seeded at the rate of 50 pounds to the acre and all rows spaced 40 inches apart. Grain moisture was taken at harvest and all yields converted to a 13-percent moisture basis.

Since not all varieties were included every year, a comparable yield average was calculated for each entry according to the following formula:

$$\frac{V\,Y}{A} = C$$

(V is the average yield of a variety for the years grown, Y the average yield of all entries for all years, A the average yield of all varieties grown in the same years the entry was grown, and C the comparable average yield of a variety.)

Table 2.—SOYBEAN YIELD TRIALS: Plots Harvested by Combine

Rank	Variety	Comparable average yield	Years grown	Yield per acre				
				1947	1948	1949	1950	1951
	Northern Illinois: Mt. Morris 1947 and Shabbona 1948-1951							
		bu.		*bu.*	*bu.*	*bu.*	*bu.*	*bu.*
1	Adams	24.5	3	....	....	23.5	22.2	28.5
2	Blackhawk	24.2	3	....	....	23.6	20.5	29.4
3	Richland	23.5	5	28.2	21.7	22.3	19.0	26.1
4	Manchu No. 3	23.3	3	27.9	19.0	....	19.6	....
5	Earlyana	23.2	4	23.9	....	19.7	22.6	28.1
6	Hawkeye	22.9	5	25.5	21.8	21.9	18.5	27.0
7	Manchu 606	22.7	4	22.2	19.6	....	19.4	29.9
8	Early Korean	22.1	5	19.7	23.7	24.8	19.4	22.8
9	Dunfield	21.5	4	17.6	24.6	....	19.4	24.8
10	Lincoln	21.3	5	22.6	23.7	21.4	17.9	21.0
11	Mukden	20.2	4	21.3	....	18.1	20.7	21.9
12	Mandarin 507	19.6	2	....	14.0	....	....	27.1
13	Illini	18.7	3	21.0	....	....	18.2	18.3
14	Flambeau	18.2	4	....	13.4	17.8	16.1	24.9
15	Chief	18.1	1	18.6	....	....	....	....
	Average of all entries	21.9	..	22.5	20.6	21.5	19.5	25.4
	Bushels necessary for significance	....	..	....	3.1	2.6	4.4	2.3

(Table is concluded on next page)

Table 2. — SOYBEAN YIELD TRIALS: Plots Harvested by Combine (Concluded)

Rank	Variety	Comparable average yield	Years grown	Yield per acre				
				1947	1948	1949	1950	1951
	Central Illinois: Urbana 1947-1951							
		bu.		*bu.*	*bu.*	*bu.*	*bu.*	*bu.*
1	Adams	38.8	3	....	....	45.4	37.4	43.5
2	L6-2132	38.2	3	....	....	42.0	39.4	43.1
3	Hawkeye	38.0	5	25.1	41.2	44.1	37.3	41.3
4	Perry	37.0	2	....	....	....	38.7	40.6
5	L6-1503	36.3	2	....	....	....	38.1	39.7
6	L6-1152	36.2	3	....	....	40.4	37.6	39.8
7	Dunfield	36.0	5	24.9	38.8	41.2	35.9	39.2
8	Lincoln	35.7	5	23.5	39.9	39.3	35.8	40.1
9	Richland	35.4	5	22.2	38.7	40.9	35.8	39.6
10	Mukden	35.3	5	23.5	38.7	39.5	34.7	40.0
11	Illini	34.5	5	20.4	37.7	41.5	32.7	40.3
11	Early Korean	34.5	5	20.7	31.5	40.9	35.2	44.3
13	Chief	33.7	5	22.2	39.7	39.7	31.4	35.7
13	Patoka	33.7	5	26.2	38.2	31.5	33.9	38.7
15	Blackhawk	33.3	3	....	....	36.2	33.9	38.4
16	Wabash	32.9	3	....	....	36.7	32.2	38.4
17	Earlyana	32.0	5	22.5	33.2	35.7	29.6	39.2
	Average of all entries	35.0	..	22.9	38.1	39.0	34.9	40.1
	Bushels necessary for significance	....	..	....	3.5	3.8	2.6	2.4
	Southern Illinois: Alhambra 1947-1949 and Brownstown 1950-1951							
1	Perry	34.6	2	....	....	....	35.8	40.3
2	Patoka	33.8	5	27.4	37.5	36.4	30.6	37.0
3	Missouri S-100	33.7	1	....	....	....	34.5	....
4	Wabash	32.5	5	20.3	32.5	39.9	31.5	38.1
4	L6-2132	32.5	2	....	....	....	33.6	37.9
6	L6-1503	31.4	2	....	....	....	32.8	36.4
7	Chief	31.3	5	18.8	29.1	38.2	33.1	37.2
7	Gibson	31.3	3	19.6	31.7	36.3	....	....
9	Viking	30.4	3	15.8	34.0	35.4	....	....
10	Lincoln	29.4	5	20.6	26.2	35.4	31.3	33.3
11	Carlin	28.9	3	....	24.6	37.5	27.5	....
12	Adams	28.6	2	....	....	....	29.6	33.3
13	Dunfield	28.3	5	21.4	28.9	33.1	26.9	31.1
14	Illini	28.0	5	18.6	24.9	36.0	26.9	33.4
15	Macoupin	27.3	3	17.8	....	31.0	29.6	....
16	Hawkeye	23.9	2	....	....	....	25.8	26.9
	Average of all entries	30.0	..	21.6	28.6	33.8	30.7	35.3
	Bushels necessary for significance	....	..	....	2.9	5.5	3.7	1.8

Rod-Row Tests

Varieties were planted in a randomized block design with 4 replications. Individual plots consisted of a single row 18 feet long, trimmed to 16½ feet just before harvest. Rows were seeded at the rate of 175 viable beans each. Plots were cultivated according to the general practice of growers in the particular area. The widths of the rows varied with locations and are shown in Table 1; other data on these rod-row tests are given in Table 3.

Computing yields. The soybeans were cut with a small mower and threshed on the test site with a small portable machine. Yields were computed on the basis of 14.0 percent moisture. Long-time yield averages are given where available.

Maturity. When about 90 percent of the pods had turned brown, the crop was considered mature and that date taken as the date of maturity. If good drying weather prevailed, maturity for combining would have been about 10 days later.

Rating for lodging. At harvest the varieties were rated for erectness, using a scale from 1 (all plants erect) to 5 (all plants prostrate).

Height. Data on height of plants were obtained at harvest and recorded in inches. The average distance from the ground line to the topmost pod was determined for each variety.

Chemical characteristics. Protein and oil analyses were made on a moisture-free basis by the U. S. Regional Soybean Laboratory at Urbana. Chemical composition was determined from composite samples prepared by blending equal weights of seed from each location in the North-Central states where a particular maturity test was made. Iodine numbers, which indicate the drying qualities of the oil, were determined from these same composite samples. The higher the iodine number, the faster the rate of drying.

Acknowledgment. In publishing the data presented in this circular, special recognition is due the work of the late R. F. FUELLEMAN of the Agronomy Department and L. F. WILLIAMS, formerly with the U. S. Regional Soybean Laboratory at Urbana, who were in charge of soybean variety investigations at the Illinois Station until 1951 and who were responsible for much of the data collected in this study. — *The authors* (J. W. PENDLETON and C. H. FARNHAM, of the Department of Agronomy; R. D. OSLER and J. L. CARTTER, U. S. Regional Soybean Laboratory)

Table 3. — SOYBEAN YIELDS, SOME PLANT CHARACTERISTICS, AND CHEMICAL PROPERTIES: Rod-Row Trials; Plots Mowed and Threshed

Variety	Yield per acre				Maturity date	Lodging rating	Height	Protein	Oil	Iodine number
	Average 1949-51	1949	1950	1951						
Northern Illinois: Compton 1949-1950 and Shabbona 1951										
	bu.	*bu.*	*bu.*	*bu.*			*in.*	*perct.*	*perct.*	
Blackhawk	33.2	27.5	43.4	28.7	9-14	1.9	35	41.1	20.1	130.3
Habaro	33.1	29.4	39.2	30.8	9-13	2.0	29	43.8	18.5	133.3
Earlyana	32.2	25.8	43.4	27.5	9-15	2.7	38	42.9	19.4	134.1
Monroe	31.1	26.7	37.5	29.0	9-11	2.1	39	42.5	19.4	132.9
Mandarin (Ott.)	29.4	25.5	33.6	29.0	9-5	1.3	28	43.2	19.1	130.2
Bushels necessary for significance	2.0	3.5	3.9	3.2	....	...	..	....	....	.....
North-Central Illinois: Dwight 1949-1951										
Lincoln	35.1	43.8	24.1	37.4	9-30	2.0	42	40.3	20.8	136.6
Adams	34.2	39.4	23.5	39.7	9-25	1.9	43	40.3	20.7	133.4
Hawkeye	34.1	37.9	23.9	40.5	9-25	1.7	43	41.0	20.7	129.8
Earlyana	30.1	34.3	20.0	36.1	9-15	2.7	43	42.4	20.3	132.5
Blackhawk	29.8	32.1	19.8	37.4	9-16	1.7	39	40.9	20.7	128.2
Richland	28.5	30.8	19.7	35.0	9-25	1.7	36	40.5	20.1	130.3
Bushels necessary for significance	1.9	4.3	2.4	2.6	....	...	..	....	....	.....

(Table is concluded on next page)

(Table 3. — Concluded)

Variety	Yield per acre				Maturity date	Lodging rating	Height	Protein	Oil	Iodine number
Central Illinois: 1944-1951 averages										
	All fields	Urbana	Clayton	Stoning-ton						
	bu.	*bu.*	*bu.*	*bu.*			*inches*	*perct.*	*perct.*	
Lincoln	33.0	36.6	28.8	33.7	9-19	2.2	42	40.3	21.7	134.4
Adams	31.6	36.1	27.1	31.6	9-15	2.4	41	40.4	22.0	131.0
Chief	30.5	33.3	27.9	30.4	9-28	2.8	53	40.2	20.6	133.1
Dunfield	28.2	30.8	26.1	27.6	9-17	2.9	41	39.7	21.7	127.9
Illini	27.7	30.1	24.3	28.7	9-19	3.1	46	40.8	20.5	132.7
Bushels necessary for significance	1.1	1.9	1.8	1.8	....	...	..	....	....	.....
Southern Illinois: 1949-1951 averages										
	All fields	Edge-wood	Trenton	Eldo-rado						
	bu.	*bu.*	*bu.*	*bu.*			*inches*	*perct.*	*perct.*	
Perry	38.7	40.3	41.0	34.7	10-1	2.3	41	40.8	21.3	130.3
Chief	34.4	34.7	37.2	31.2	9-25	2.8	52	40.2	20.6	133.0
Wabash	34.1	35.9	36.2	30.3	9-28	2.6	45	40.1	21.2	130.2
Patoka	33.6	37.0	35.6	28.1	9-27	2.8	38	43.0	20.2	132.7
Bushels necessary for significance	2.1	5.0	2.4	2.8	....	...	..	....	....	.....

[a] Freeburg, Illinois, 1949-1950.

Table 4. — Parentage and Plant Characteristics of a Number of Soybean Varieties

Variety	Parentage or origin	Lodging resistance	Flower color	Pubescence color	Seed scar color	Seed size	Maturity area
Recommended varieties							
Adams	Illini × Dunfield	Good	White	Gray	Light brown	Medium	North-central
Blackhawk	Mukden × Richland	Very good	White	Gray	Light brown	Medium large	Northern
Chief	Illini × a Manchu strain	Fair	Purple	Gray	Gray to brown	Small	Southern
Hawkeye	Mukden × Richland	Very good	Purple	Gray	Brown-black	Large	Central and North-central
Lincoln	Mandarin × Manchu	Good	White	Brown	Black	Medium	North-central, Central, and South-central
Perry	Patoka × L7-1355	Good	Purple	Gray	Black or brown	Medium	Extreme southern
Wabash	Dunfield × Mansoy	Fair	White	Gray	Light brown	Medium	Southern
Varieties not recommended							
Bavender Special	Farmer selection	Poor	Purple and white	Brown	Black and brown	Medium	North and North-central
Carlin	Rogue in Dunfield	Poor	Purple	Brown	Colorless	Medium	Southern
Dunfield	Manchurian introduction	Fair	White	Gray	Light brown	Medium	Central
Earlyana	Natural hybrid from Dunfield	Fair	Purple	Brown	Colorless with brown speck	Medium	Northern
Early Korean[a]	Manchurian introduction	Good	White	Brown	Black	Very large	Northern
Illini	Selection from A.K.	Fair	White	Gray	Brown	Small	Central
Monroe[b]	Mukden × Mandarin	Good	Purple	Gray	Colorless	Medium	Northern
Patoka	Manchurian introduction	Fair	Purple	Gray	Brown-black	Medium large	Southern
Richland	Manchurian introduction	Very good	Purple	Gray	Brown	Medium	North-central

[a] Excessive mechanical seed damage during threshing. [b] Has not excelled Blackhawk in Illinois tests.

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